

Documentation of Sustained Elimination of Endemic Measles, Rubella and CRS, United States, 2011

Advisory Committee on
Immunization Practices Meeting
February 23, 2012

Elimination Definitions and Timelines

- Endemic disease = chain of transmission ≥ 12 months.
- Elimination of endemic disease \neq zero cases,.
- United States documented the elimination of endemic measles in 2000 and of endemic rubella and CRS in 2004.
- Last reported endemic measles case in the Western Hemisphere in 2002; last reported endemic rubella and CRS cases in 2009.
- WHO Region of the Americas verifying and documenting the elimination of endemic measles, rubella and CRS.
- US National Report assesses sustained elimination of endemic measles, rubella and CRS from original documentation through 2011.

Country reports submitted by National Commissions/Sub Regional Commission on the documentation and verification of measles, rubella and CRS elimination *



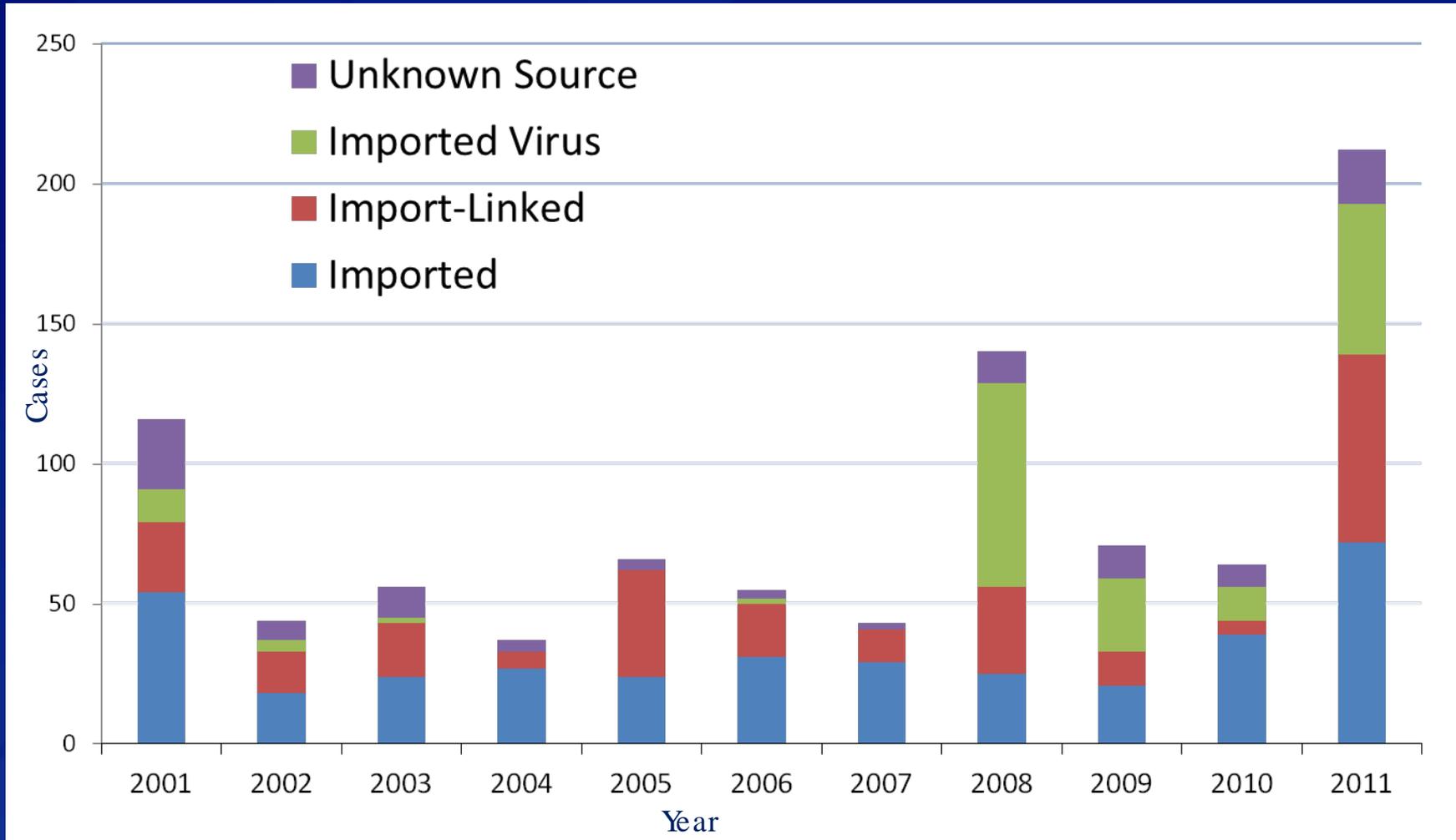
- Fourteen National Commissions and the Caribbean Regional Sub commission (13 countries) have submitted their final reports.
- Four countries (Haiti, Ecuador, Brazil, Colombia) are implementing outbreak control measures (e.g. Haiti will submit the report after the vaccination campaign).
- Three countries will submit their final reports by end of February (Mexico, USA, Venezuela).
- One country, Peru, is in process of drafting the document.

Source: Country reports to PAHO/WHO
*Data as of February 22nd, 2012.

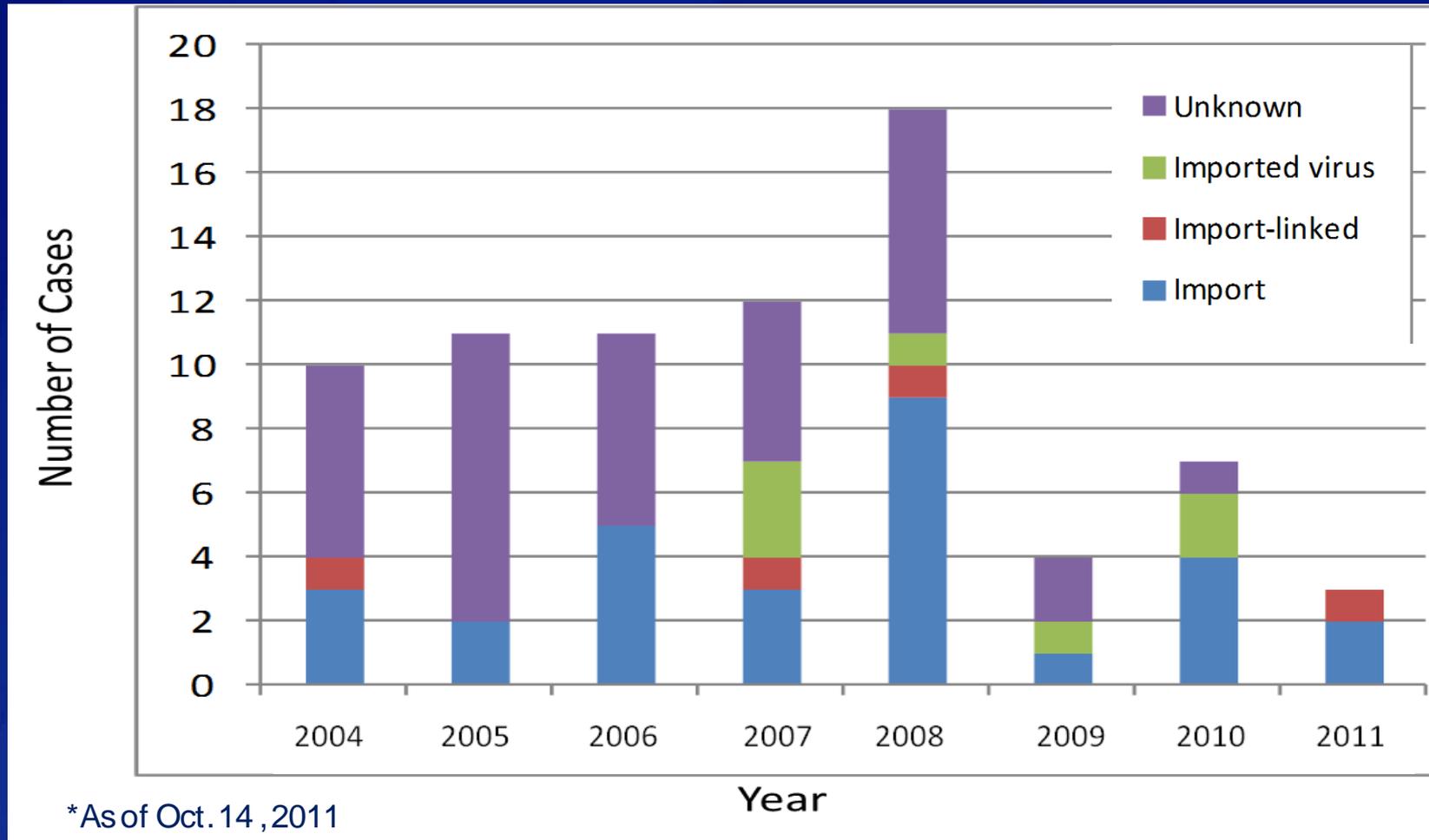
Evidence of Sustained Elimination of Endemic Measles and Rubella, United States, 2011

- Extremely low reported annual incidence.
- Majority of cases associated with importation.
- Most imported cases do not lead to spread.
- Unknown source cases insufficient for endemic chain.
- Outbreaks are small and of short duration.
- MMR vaccination coverage sustained at high levels.
- High seropositivity in national serosurveys.
- No endemic strain of measles or rubella virus.
- Surveillance adequate to detect endemic disease.

Measles Cases by Import Status United States, 2004-2011*



Rubella Cases by Import Status United States, 2004-2011*



Measles Unknown Source Cases

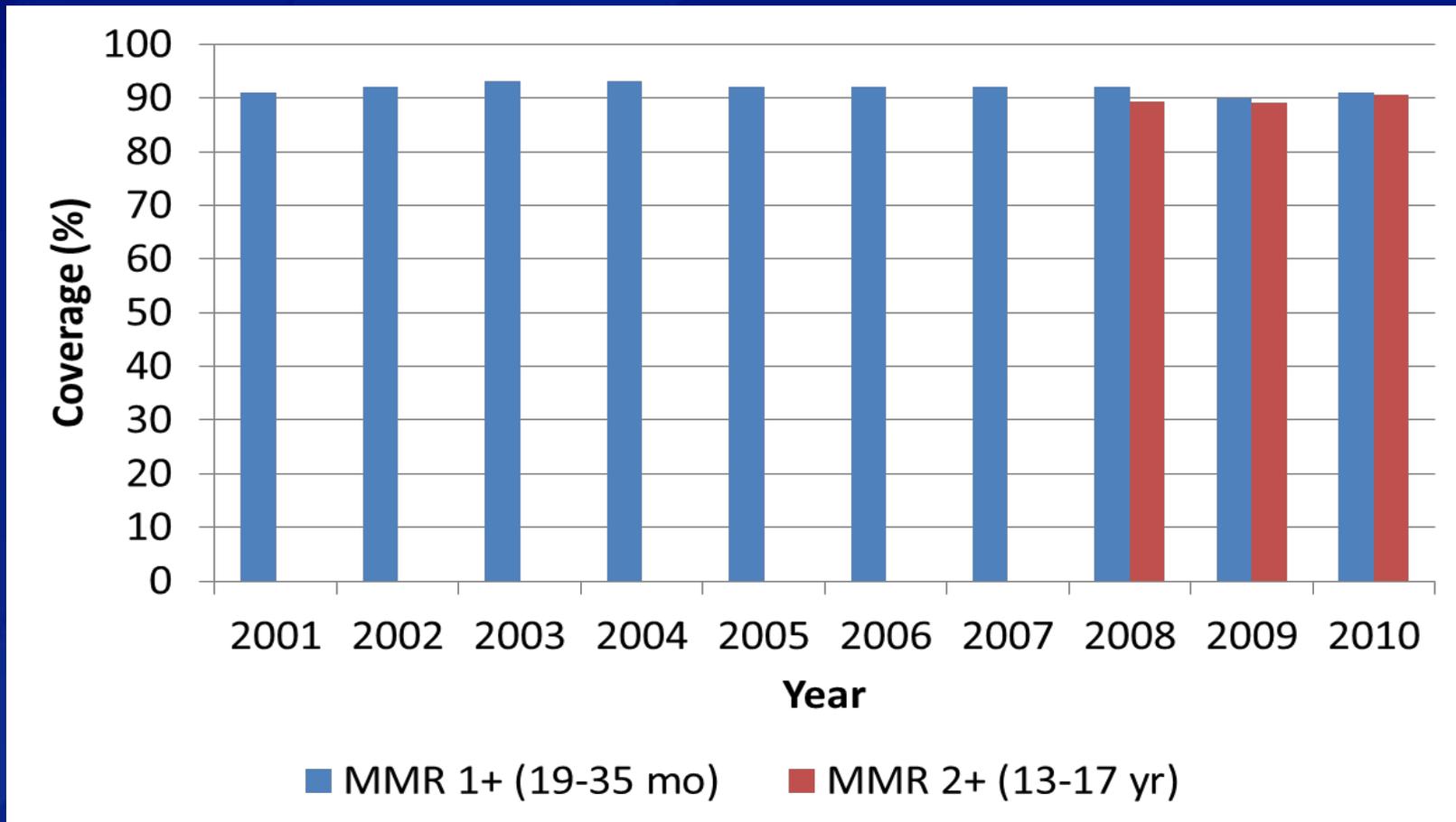
Counties with >1 Unknown Source Case, 2001-2011

State	County	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*	County total
AR	Scott								2				2
CA	Los Angeles	5	1						1	1	1		9
CA	San Francisco	2			2								4
CA	Orange		2						1				3
CA	Marin	2											2
HI	Honolulu	1		5									6
MA	Middlesex											5	5
MA	Suffolk											2	2
MA	Worcester											2	2
MI	Wayne			1				1					2
MO	Warren									6			6
MO	Green										3		3
NY	New York	2				1							3
NY	Bronx				1				1				2
OR	Washington	2											2
PA	Allegheny	1					1		1				3
WA	Island	2											2
	Year Total	17	3	6	3	1	1	1	6	7	4	9	58

Measles Outbreaks with 10 or more Cases United States, 2001-2011

Year	Outbreak Name	State	Cases #	Import Status	Genotype	Setting	1st & last rash onsets	Duration	Median Age	Age Range
2005	Tippecanoe County	IN	34	Imported (Romania)	D4	Church/ household	5/16/2005 - 6/24/2005	6 weeks	12 y	9 mo - 49 y
2008	DuPage/Cook County	IL	30	Imported-virus	D4	Homeschool	5/17/2008 - 7/3/2008	7 weeks	10 y	8 mo - 43 y
2011	Hennepin County	MN	21	Imported (Kenya)	B3	Shelter	2/15/2011 - 4/24/2011	10 weeks	23 m	3 mo - 51 y
2008	Brooklyn/ Kings County	NYC	21	Imported (Israel, Belgium)	D4	Community	2/17/2008 - 4/25/2008	10 weeks	15 m	5 mo - 11 y
2008	Grant County	WA	19	Imported-virus	D5	Homeschool	4/12/2008 - 5/30/2008	7 weeks	12 y	9 mo - 23 y
2006	Boston	MA	17	Imported (India)	D8	Office	5/5/2006 - 6/31/2006	8 weeks	36 y	23 y - 46 y
2009	Brooklyn	NYC	15	Imported-virus	D4	Community	5/6/2009 - 7/13/2009	10 weeks	24 m	8 mo - 51 y
2001	Adoptees 2001	Multiple	14	Imported (China)	n/a	Orphanage	2/15/2011 - 3/13/2001	4 weeks	10.5 m	9 mo - 46 y
2011	Noble County	IN	14	Imported (Indonesia)	D4	Household	6/3/2011 - 6/24/2011	3 weeks	21 y	15 mo - 27 y
2008	Pima County.	AZ	14	Imported (Switzerland)	D5	Medical	2/13/2008 - 5/2/2008	11 weeks	14 y	7 mo - 50 y
2001	South King County	WA	11	Imported (Korea)	H1	Community	1/10/2001 - 2/13/2001	4 weeks	16 y	14 mo - 40 y
2002	Lee County	AL	13	Imported (Philippines)	D3	Day-care	10/19/2002 - 11/15/2002	4 weeks	10 m	9 mo - 50 y
2003	Delaware County	DE, PA	11	Imported (Lebanon)	D4	Boarding school	3/21/2003 - 4/29/2003	6 weeks	17 y	13 mo - 33 y
2003	Honolulu	HI	13	Imported (Marshall Islands)	H1	Community	7/13/2003 - 9/11/2003	9 weeks	11 m	3 mo - 21 y
2008	San Diego	CA/HI	12	Imported (Switzerland)	D5	Community	1/25/2008- 2/16/2008	3 weeks	6 y	10 mo-9 y
2004	Adoptees 2004	WA	10	Imported (China)	H1	Orphanage	3/22/2004 - 4/18/2004	4 weeks	12 m	12 mo - 19 y

Estimated MMR Vaccination Coverage Children 19-35 months 2001-2010 and 13-17 Years, 1998-2010, United States



2010 National Immunization Survey for children and teens, available at
<http://www.cdc.gov/vaccines/stats-surv/imz-coverage.htm>

Seroprevalence of measles antibody, NHANES, United States, 1999-2004

Birth Year Cohorts	Participants (N)	Seropositive Proportion, % (95% CI)
1949-1966	3360	96.6 (95.5-97.5)
1967-1976	2321	92.4 (90.8-93.9)
1977-1986	5288	96.4 (95.5-97.2)
1987-1998	5080	97.7 (96.4- 98.6)
All Cohorts	16,049	95.9 (95.1-96.5)

US Surveillance System Adequate to Detect Endemic Measles or Rubella

- Consistent detection of imported cases.
- Detection of isolated cases and small chains of transmission.
- Passive surveillance system activates rapid public health response with active investigation
- Active investigation detects few unreported cases found retrospectively.
- Substantial IgM testing volume as evidenced by CDC confirmatory testing volume.

Summary and Conclusions

- Each external expert concluded that elimination of endemic measles, rubella and CRS from the United States has been sustained.
- The US National Report on Elimination of Endemic Measles, Rubella and CRS is being forwarded to the PAHO International Commission for review.

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